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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/618,165

07/17/2000

Jae Beom Choi

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07/15/2010

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EXAMINER

CHWASZ, JADE R

ART UNIT

PAPER NUMBER

2872

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DELIVERY MODE

07/15/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/618,165	Applicant(s) CHOI ET AL.	
	Examiner Jade R. Chwasz	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-15, 18-23 and 27-38 is/are pending in the application.
- 4a) Of the above claim(s) 27-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-15, 18-23 and 38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 July 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/084,583.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/25/10 has been entered.

Response to Amendment

2. The amendments to the claims, in the submission dated 6/25/10, are acknowledged and accepted.

Response to Arguments

3. Applicant's arguments filed 6/25/10 have been fully considered but they are not persuasive.

4. Applicants argue that the prior art cited does not teach or reasonably suggest "a plurality of quartz substrate parts, each quartz substrate part comprises one quartz substrate or a plurality of quartz substrates stacked on top of one another; a polarizer holder having a lattice like structure and directly supporting each quartz substrate part, wherein the polarizer holder includes a material having an optical absorptivity of almost 100%, and wherein the polarizer holder absorbs light reflected by the plurality of quartz substrate parts." The Examiner respectfully disagrees. Sinoto discloses a plurality of substrate parts (18, information cells) that comprise one substrate part (e.g. array) (note

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the number of arrays in an information cell, including the number of light-polarizing elements, may be varied such that the array contains only one array [col. 2, lines 60-64]); and a polarizer holder (36, opaque border) having a lattice like structure that directly supports each quartz substrate part (18, information cell) [see figures 1-2].

Applicants also argue that there is no motivation to combine the Sinoto, the Melles-Griot catalogue and Hanssen references. The Examiner respectfully disagrees. Sinoto, the Melles-Griot catalogue and Hanssen are related as adjustable devices. Hanssen discloses X-axis and Y-axis controllers to control displacement in either direction. As noted in Section 4 of the Office Action dated 5/11/09, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Sinoto and the Melles-Griot catalogue, as taught by Hanssen, in order to easily adjust the positioning of elements as needed in both X and Y directions.

Applicants additionally argue that the objective of Sinoto "is for no light to be lost from either state of polarization" and that the objective is undermined by a polarizer holder with a highly absorbing material. The Examiner respectfully disagrees. Sinoto discloses that the axes of polarization of the elements can be arranged such that a coded pattern of "light" and "dark" elements can be created. As noted in column 3, lines 46-50 of Sinoto, "it is preferred that a read-out be given when all of the elements in a horizontal array have either maximum or minimum transmission of the incident light, that is when all elements are either "light" or "dark." As such, light would necessarily be "lost" due to the combination of polarizers used to polarize the light. Further the opaque border of Sinoto will transmit very little light, and therefore reflects, scatters or absorbs

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most of it. The Melles-Griot catalogue teaches a lens holder that is made of a material with nearly 100% absorptivity. As noted in Section 4 of the Office Action dated 5/11/09, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Sinoto, as taught by the Melles-Griot catalogue, in order to prevent deleterious light scattering and reflection effects, which may adversely affect the optical beam quality.

5. The Examiner notes that the Official Notice taken in Section 5 of the Office Action dated 11/9/09 (See specifically Claim 22) has been taken to be admitted prior art since Applicants failed to seasonably traverse the assertion of Official Notice (See MPEP 2144.03).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 13-15, 18-19, and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinoto (3,371,324) in view of Melles-Griot Optics Catalog (Optics Guide 5) and Hanssen et al. (4,624,537).

Consider claim 22, Sinoto discloses a polarizer structure (e.g. fig. 2 and 10-11) comprising a light source for generating a light (light source not labeled); a plurality of substrate parts (e.g. 18, information cells), each substrate part comprising one substrate (each information cell contains a number of arrays which may be varied in accordance

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with requirements imposed upon the system such that only one array, or substrate part, could be used in the information cell [col. 2, lines 50-64]); wherein each transparent substrate (e.g. arrays 28, 30, 32, 34) is made of plastic and produces polarized light; a polarizer holder (36, opaque border) having a lattice like structure and directly supporting each substrate part (note: the opaque border individually supports each array), wherein the polarizer holder includes a material having an optical absorptivity, and wherein the polarizer holder absorbs light reflected by the plurality of substrate parts; a means for directing light onto the plurality of substrates (via lenses) [col. 2, line 53 to col. 3, line 6, col. 7, lines 52-67]. Note: the recitation “for treating an alignment layer on a substrate of a liquid crystal display device” has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

However, Sinoto does not disclose explicitly that the transparent substrates (e.g. 28, 30, 32, 34) causing the polarization of the incident light are made from quartz. Official Notice is taken. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use quartz plates instead of plastic plates in the polarizer structure of Sinoto, since quartz is less susceptible to external deleterious factors.

However, Sinoto does not specify the amount of Optical absorptivity exhibited by the polarizer holder. Sinoto and The Melles-Griot Optics product catalogue are related as polarizer devices. The Melles-Griot Optics product catalog (Optics Guide 5) shows polarizer elements (e.g., sheet polarizers), wherein it is disclosed that said polarizers are mounted on holders comprising black metal ring (see p. 14-23). In the special section dedicated to mounting systems, the catalog shows a lens holder made from brass, wherein it is taught that the body is black chrome coated to reduce scatter and stray reflections (see p. 23-5). For illustration purposes only, several other product publications are recited, all of them disclosing polarizer holders made of black anodized metal (see OptoSigma, Standa, and EKSPLA catalogs). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the material of the polarizer holder of Sinoto have a high absorptivity (such as highly absorbing black surfaced material), as taught by the Melles-Griot catalog, for avoiding undesired scattering of light (as taught by Melles-Griot) into the (narrow-angle forward, p-polarized) light component at the output of the device. Regarding the claimed amount of absorptivity, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the material of the polarizer holder of Sinoto having an absorptivity almost equal to 100%, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). The use of highly absorptive optical element holders is well known in the art for preventing deleterious light scattering and reflection effects, which may adversely affect the optical beam quality.

However the modified Sinoto reference does not disclose a first moving control part moving the plurality of quartz substrate parts in the X-axis direction or a second moving control part moving the plurality of quartz substrate parts in the Y-axis direction. Sinoto, Melles-Griot and Hanssen et al. are related as adjustable devices. Hanssen et al. teach (e.g. figure 1) a first moving control part (6, displacement drive) for moving the plurality of quartz substrates in the X-axis direction and a second moving control part (8, displacement drive) moving the plurality of quartz substrate parts in the Y-axis direction [col. 2, lines 44-48]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of the modified Sinoto reference, as taught by Hanssen et al., in order to easily adjust the positioning of elements as needed in both X and Y directions.

Consider claims 13 and 15, the modified Sinoto reference discloses (e.g. figure 2 of Sinoto) the polarizer sections are rectangular.

Consider claim 14, the modified Sinoto reference does not specify that the sections 31 or 32 are triangular in shape. It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the polarizer section triangular, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Here, the result effective variable is the shape of the polarizer. A mesh of triangular shaped sections is more economical to make since it has fewer connecting edges.

Consider claims 18-19, the modified Sinoto reference discloses that the substrate partially polarizes the light. However, the modified Sinoto reference does not disclose that the means for directing the light collimates the light. Official notice is taken. Although Sinoto does not disclose that the lenses collimate the light, it is well known that optical systems use lenses to collimate light in order to produce a uniform beam of light to prevent aberrations and other optical errors. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of the modified Sinoto reference so that a uniform beam of light could be produced to eliminate errors associated with uncollimated light.

Consider claim 23, the modified Sinoto reference discloses (e.g. figure 10 of Sinoto) that the degree of partially polarization depends on the number of substrates (polarization will depend on which portions of sheets 104 and 106 the light passes through) [col. 8, lines 10-19 of Sinoto].

8. Claims 20-21 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinoto (3,371,324) in view of Melles-Griot Optics Catalog (Optics Guide 5) and Hanssen et al. (4,624,537) as applied to claim 1 above, and in further view of Kubota (3,912,920).

Consider claims 20-21, the modified Sinoto reference does not disclose that the plurality of the glass substrate parts is placed at a non-zero angle equal to the Brewster's angle relative to the normal line to the surface of the polarizer. Sinoto, Melles-Griot, Hanssen and Kubota are related as adjustable devices. Kubota teaches that the plurality of the glass substrate parts is placed at a non-zero angle equal to the

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Brewster's angle relative to the normal line to the surface of the polarizer. [lines 43-49, col. 1 of Kubota]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of the modified Sinoto reference, as taught by Kubota, so that light can be transmitted through the surface without reflection thereby reducing reflection errors.

Consider claim 38, Sinoto discloses a polarizer structure (e.g. fig. 2 and 10-11) comprising a light source for generating a light (light source not labeled); a plurality of substrate parts (e.g. 18, information cells), each substrate part comprising one substrate (each information cell contains a number of arrays which may be varied in accordance with requirements imposed upon the system such that only one array, or substrate part, could be used in the information cell [col. 2, lines 50-64]); wherein each transparent substrate (e.g. arrays 28, 30, 32, 34) is made of plastic and produces polarized light; a polarizer holder (36, opaque border) having a lattice like structure and directly supporting each substrate part (note: the opaque border individually supports each array), wherein the polarizer holder includes a material having an optical absorptivity, and wherein the polarizer holder absorbs light reflected by the plurality of substrate parts; a means for directing light onto the plurality of substrates (via lenses) [col. 2, line 53 to col. 3, line 6, col. 7, lines 52-67]. Note: the recitation "for treating an alignment layer on a substrate of a liquid crystal display device" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the

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preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

However, Sinoto does not disclose explicitly that the transparent substrates (e.g. 28, 30, 32, 34) causing the polarization of the incident light are made from quartz. Official Notice is taken. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use quartz plates instead of plastic plates in the polarizer structure of Sinoto, since quartz is less susceptible to external deleterious factors.

However, Sinoto does not specify the amount of Optical absorptivity exhibited by the polarizer holder. Sinoto and The Melles-Griot Optics product catalogue are related as polarizer devices. The Melles-Griot Optics product catalog (Optics Guide 5) shows polarizer elements (e.g., sheet polarizers), wherein it is disclosed that said polarizers are mounted on holders comprising black metal ring (see p. 14-23). In the special section dedicated to mounting systems, the catalog shows a lens holder made from brass, wherein it is taught that the body is black chrome coated to reduce scatter and stray reflections (see p. 23-5). For illustration purposes only, several other product publications are recited, all of them disclosing polarizer holders made of black anodized metal (see OptoSigma, Standa, and EKSPLA catalogs). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the material of the polarizer holder of Sinoto have a high absorptivity (such as highly absorbing black surfaced material), as taught by the Melles-Griot catalog, for avoiding undesired

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scattering of light (as taught by Melles-Griot) into the (narrow-angle forward, p-polarized) light component at the output of the device. Regarding the claimed amount of absorptivity, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the material of the polarizer holder of Sinoto having an absorptivity almost equal to 100%, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In *re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). The use of highly absorptive optical element holders is well known in the art for preventing deleterious light scattering and reflection effects, which may adversely affect the optical beam quality.

However the modified Sinoto reference does not disclose a first moving control part moving the plurality of quartz substrate parts in the X-axis direction or a second moving control part moving the plurality of quartz substrate parts in the Y-axis direction. Sinoto, Melles-Griot and Hanssen et al. are related as adjustable devices. Hanssen et al. teach (e.g. figure 1) a first moving control part (6, displacement drive) for moving the plurality of quartz substrates in the X-axis direction and a second moving control part (8, displacement drive) moving the plurality of quartz substrate parts in the Y-axis direction [col. 2, lines 44-48]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of the modified Sinoto reference, as taught by Hanssen et al., in order to easily adjust the positioning of elements as needed in both X and Y directions.

However, the modified Sinoto reference does not disclose that each substrate part is slantingly supported by the polarizer holder. Sinoto, Melles-Griot, Hanssen and

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Kubota are related as adjustable devices. Kubota teaches (e.g. figure 3) a plurality of substrate parts (3a, sheets) that are slantingly supported by a polarizer holder (e.g. 4, transparent plates) [lines 28-59, col. 4, of Kubota]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of the modified Sinoto reference, as taught by Kubota, so that light can be transmitted through the surface without reflection thereby reducing reflection errors.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jade R. Chwasz whose telephone number is (571)272-8199. The examiner can normally be reached on Monday to Friday 6:00 am -3:30 pm est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JRC
/Jade R. Chwasz/
Examiner, Art Unit 2872

/Stephone B. Allen/
Supervisory Patent Examiner
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